ABSTRACT

Purpose of the study: To comparatively evaluate the push out bond strength of prefabricated glass fiber reinforced composite resin post and customized modified Polyetheretherketone (PEEK) post following surface treatments.

Materials and methods: Total of thirty mandibular first single rooted premolars were divided into two groups of fifteen each (n=15).All the specimens were subjected to endodontic therapy, followed by post space preparation. The posts from both the groups were subjected to dual surface treatments (Al_2O_3 50µm air abrasion followed by silane coating) and were subsequently cemented with dual cure resin cement (Maxcem elite, Kerr). All the samples were sectioned into three regions of each 2mm thickness and were subjected to push out bond strength analysis, followed by the assessment of mode of failure. Bond strength was compared using one way ANOVA and Independent T test.

Results: There were significant differences ($P < 0.05$) in the push out bond strength in the three regions of modified PEEK post. There were no significant differences ($P > 0.05$) in the three regions of prefabricated glass fiber reinforced composite resin post. There were highly significant differences in push out bond strength ($P < 0.05$) between glass fiber post and modified PEEK post in coronal and middle regions but not in the apical region.

Conclusion: Within the limitations of this study it was concluded that surface treated modified PEEK material can be used as an intra radicular post because the was significant differences in the mean push out bond strength in all the three regions and there was absolutely no cohesive failure (with in the post)seen. However glass fiber post provided superior mean push out bond strength than the modified PEEK post and this was significant in coronal and middle regions only.

Keywords: Glass fiber reinforced composite resin post, Modified PEEK post, Push-out bond strength, Mode of failure, Alumina air abrasion, Silane coating.